

# Quarto Plate – Product and dimension program

Outokumpu's production unit in Degerfors, Sweden, offers stainless steel quarto plate, or heavy plate, in an industry-leading range of dimensions and alloys.

Outokumpu's quarto plate products combine outstanding corrosion resistance with strength, durability and ease of fabrication. As quarto plate is rolled individually, each plate can be produced to meet specific – and often unique – customer requirements. In addition to its wide range of products, Outokumpu offers assistance with materials selection, ensuring that customers are supplied with the product that best suits their needs, whatever the application.

We can deliver this unique service because we have complete control over the entire production process, providing customers with solutions that are 100% tailor-made. After cutting to size, plates may undergo further processing such as edge preparation, surface finishing by grinding, or even the production of complex shapes. In other words, our production of hot rolled plate is a made-to-measure service designed to suit the individual needs of each customer. The tables in this document show the maximum plate length in meters (m) depending on plate thickness and width in millimeters (mm).



# Stainless steel grades

Table 1

| Core range        |                    |           |        |                                         |      |      |    |      |        |       |
|-------------------|--------------------|-----------|--------|-----------------------------------------|------|------|----|------|--------|-------|
| Outokumpu name    | Steel designations |           |        | Typical chemical composition, % by mass |      |      |    |      |        |       |
|                   | EN                 | ASTM Type | UNS    | C                                       | Cr   | Ni   | Mo | N    | Others | Table |
| <b>Austenitic</b> |                    |           |        |                                         |      |      |    |      |        |       |
| Core 304/4301     | 1.4301             | 304       | S30400 | 0.04                                    | 18.1 | 8.1  | –  | –    | –      | 2     |
| Core 304L/4306    | 1.4306             | 304L      | S30403 | 0.02                                    | 18.2 | 10.1 | –  | –    | –      | 2     |
| Core 304L/4307    | 1.4307             | 304L      | S30403 | 0.02                                    | 18.1 | 8.1  | –  | –    | –      | 2     |
| Core 304LN/4311   | 1.4311             | 304LN     | S30453 | 0.02                                    | 18.5 | 9.2  | –  | 0.14 | –      | 3     |
| Core 304N/4315    | 1.4315             | 304N      | S30451 | 0.04                                    | 18.3 | 8.1  | –  | 0.15 | –      | 3     |
| Core 321/4541     | 1.4541             | 321       | S32100 | 0.04                                    | 17.3 | 9.1  | –  | –    | Ti     | 4     |
| Core 347/4550     | 1.4550             | 347       | S34700 | 0.05                                    | 17.5 | 9.5  | –  | –    | Nb     | 4     |

Table 2

| Core 304/4301, Core 304L/4306 <sup>*)</sup> , Core 304L/4307 – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |  |
|---------------------------------------------------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------------|------|------|------|------|------|------|--|
| Standard                                                                                          | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |  |
|                                                                                                   |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800       | 2900 | 3000 | 3100 | 3200 |      |      |  |
| EN 10088-2                                                                                        | ASTM A 240           | 5                | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 7.0  | On request |      |      |      |      |      |      |  |
|                                                                                                   |                      | 6                | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0       | 10.0 | 10.0 | 10.0 |      |      |      |  |
|                                                                                                   |                      | 7                | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0       | 10.0 | 10.0 | 10.0 |      |      |      |  |
|                                                                                                   |                      | 8                | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 13.0       | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 |      |  |
|                                                                                                   |                      | 9                | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 12.0 | 12.0 | 11.0 | 11.0 |      |  |
|                                                                                                   |                      | 10               | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 12.0 | 11.0 |  |
|                                                                                                   |                      | 11               | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.0 | 12.0 |      |  |
|                                                                                                   |                      | 12               | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.0 |  |
|                                                                                                   |                      | 12 < t ≤ 15      | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |  |
|                                                                                                   |                      | 15 < t ≤ 20      | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |  |
|                                                                                                   |                      | 20 < t ≤ 25      | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |  |
|                                                                                                   |                      | 25 < t ≤ 30      | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.4 |  |
|                                                                                                   |                      | 30 < t ≤ 35      | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.0 | 12.6 | 12.1 | 11.7 | 11.4 |      |  |
|                                                                                                   |                      | 35 < t ≤ 40      | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.2 | 12.7 | 12.2       | 11.7 | 11.3 | 10.9 | 10.5 | 10.2 | 9.9  |  |
|                                                                                                   |                      | 40 < t ≤ 45      | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.3 | 12.7 | 12.1 | 11.6 | 11.2 | 10.7       | 10.3 | 10.0 | 9.6  | 9.3  | 9.0  | 8.7  |  |
|                                                                                                   |                      | 45 < t ≤ 50      | 13.5 | 13.5 | 13.5 | 13.5 | 13.1 | 12.5 | 11.9 | 11.4 | 10.9 | 10.4 | 10.0 | 9.6  | 9.2        | 8.9  | 8.6  | 8.3  | 8.0  | 7.8  |      |  |
|                                                                                                   |                      | 50 < t ≤ 55      | 13.5 | 13.5 | 13.2 | 12.5 | 11.9 | 11.3 | 10.7 | 10.3 | 9.8  | 9.4  | 9.0  | 8.7  | 8.3        | 8.0  | 7.7  | 7.5  | 7.2  | 7.0  |      |  |
|                                                                                                   |                      | 55 < t ≤ 60      | 13.5 | 12.8 | 12.1 | 11.4 | 10.8 | 10.3 | 9.8  | 9.3  | 8.9  | 8.6  | 8.2  | 7.9  | 7.6        | 7.3  | 7.0  | 6.8  | 6.6  | 6.3  |      |  |
| 60 < t ≤ 65                                                                                       | 12.5                 | 11.7             | 11.1 | 10.5 | 9.9  | 9.4  | 9.0  | 8.6  | 8.2  | 7.8  | 7.5  | 7.2  | 6.9  | 6.7  | 6.4        | 6.2  | 6.0  | 5.8  |      |      |      |  |
| 65 < t ≤ 70                                                                                       | 11.6                 | 10.9             | 10.2 | 9.7  | 9.2  | 8.7  | 8.3  | 7.9  | 7.6  | 7.2  | 6.9  | 6.7  | 6.4  | 6.2  | 5.9        | 5.7  | 5.5  | 5.3  |      |      |      |  |
| 70 < t ≤ 75                                                                                       | 10.7                 | 10.1             | 9.5  | 9.0  | 8.5  | 8.1  | 7.7  | 7.3  | 7.0  | 6.7  | 6.4  | 6.2  | 5.9  | 5.7  | 5.5        | 5.3  | 5.1  | 4.9  |      |      |      |  |
| 75 < t ≤ 80                                                                                       | 10.0                 | 9.4              | 8.9  | 8.4  | 7.9  | 7.5  | 7.2  | 6.8  | 6.5  | 6.2  | 6.0  | 5.7  | 5.5  | 5.3  | 5.1        | 4.9  | 4.7  | 4.6  |      |      |      |  |
| 80 < t ≤ 85                                                                                       | 9.4                  | 8.8              | 8.3  | 7.8  | 7.4  | 7.0  | 6.7  | 6.4  | 6.1  | 5.8  | 5.6  | 5.4  | 5.1  | 4.9  | 4.8        | 4.6  | 4.4  | 4.3  |      |      |      |  |
| 85 < t ≤ 90                                                                                       | 8.8                  | 8.3              | 7.8  | 7.4  | 7.0  | 6.6  | 6.3  | 6.0  | 5.7  | 5.5  | 5.2  | 5.0  | 4.8  | 4.6  | 4.5        | 4.3  | 4.1  | 4.0  |      |      |      |  |
| 90 < t ≤ 95                                                                                       | 8.3                  | 7.8              | 7.4  | 6.9  | 6.6  | 6.2  | 5.9  | 5.6  | 5.4  | 5.1  | 4.9  | 4.7  | 4.5  | 4.4  | 4.2        | 4.0  | 3.9  | 3.7  |      |      |      |  |
| 95 < t ≤ 100                                                                                      | 7.9                  | 7.4              | 7.0  | 6.6  | 6.2  | 5.9  | 5.6  | 5.3  | 5.1  | 4.9  | 4.6  | 4.4  | 4.3  | 4.1  | 3.9        | 3.8  | 3.7  | 3.5  |      |      |      |  |
| 100 < t ≤ 110                                                                                     | 7.1                  | 6.7              | 6.3  | 5.9  | 5.6  | 5.3  | 5.0  | 4.8  | 4.6  | 4.3  | 4.2  | 4.0  | 3.8  | 3.7  | 3.5        | 3.4  | 3.3  |      |      |      |      |  |
| 110 < t ≤ 120                                                                                     | 6.5                  | 6.0              | 5.7  | 5.4  | 5.1  | 4.8  | 4.5  | 4.3  | 4.1  | 3.9  | 3.8  | 3.6  | 3.4  | 3.3  | 3.2        | 3.0  |      |      |      |      |      |  |
| 120 < t ≤ 130                                                                                     | 5.9                  | 5.5              | 5.2  | 4.9  | 4.6  | 4.4  | 4.1  | 3.9  | 3.7  | 3.6  | 3.4  | 3.3  | 3.1  |      |            |      |      |      |      |      |      |  |
| 130 < t                                                                                           | On request           |                  |      |      |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |  |

<sup>\*)</sup> Thicknesses > 110 mm, 5 % reduced mechanical values.

Table 3

| Core 304LN/4311, Core 304N/4315 – Maximum plate length in meters (m) |                      |                  |            |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |      |  |
|----------------------------------------------------------------------|----------------------|------------------|------------|------|------|------|------|------|------|------|------|------|------|------------|------|------|------|------|------|------|------|--|
| Standard                                                             | Plate thickness (mm) | Plate width (mm) |            |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |      |  |
|                                                                      |                      | 1500             | 1600       | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700       | 2800 | 2900 | 3000 | 3100 | 3200 |      |      |  |
| EN 10088-2                                                           | ASTM A 240           | 5                | 10.0       | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 9.0  | 9.0  | 8.0  | 8.0  | 8.0  | On request |      |      |      |      |      |      |      |  |
|                                                                      |                      | 6                | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 | On request |      |      |      |      |      |      |      |  |
|                                                                      |                      | 7                | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 10.0 | 10.0       | 9.0  | 8.0  | 7.0  | 6.0  |      |      |      |  |
|                                                                      |                      | 8                | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0       | 11.0 | 11.0 | 10.0 | 9.0  | 8.0  |      |      |  |
|                                                                      |                      | 9                | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0       | 12.0 | 12.0 | 12.0 | 12.0 | 10.0 | 8.0  |      |  |
|                                                                      |                      | 10               | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 | 11.0 |  |
|                                                                      |                      | 11               | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 |  |
|                                                                      |                      | 12               | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 |  |
|                                                                      |                      | 12 < t ≤ 15      | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 |  |
|                                                                      |                      | 15 < t ≤ 20      | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.3 | 12.8 |  |
|                                                                      |                      | 20 < t ≤ 25      | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.5       | 12.0 | 11.6 | 11.2 | 10.8 | 10.4 | 10.1 |      |  |
|                                                                      |                      | 25 < t ≤ 30      | 13.0       | 13.0 | 13.0 | 13.0 | 13.0 | 13.4 | 12.7 | 12.2 | 11.6 | 11.1 | 10.7 | 10.2       | 9.9  | 9.5  | 9.1  | 8.8  | 8.5  | 8.2  |      |  |
|                                                                      |                      | 30 < t ≤ 35      | 13.0       | 13.0 | 13.3 | 12.6 | 11.9 | 11.3 | 10.8 | 10.3 | 9.8  | 9.4  | 9.0  | 8.6        | 8.3  | 8.0  | 7.7  | 7.4  | 7.2  | 6.9  |      |  |
|                                                                      |                      | 35 < t ≤ 40      | 13.1       | 12.3 | 11.5 | 10.9 | 10.3 | 9.8  | 9.3  | 8.9  | 8.5  | 8.1  | 7.8  | 7.4        | 7.1  | 6.9  | 6.6  | 6.4  | 6.1  | 5.9  |      |  |
|                                                                      |                      | 40 < t ≤ 45      | 11.5       | 10.8 | 10.1 | 9.6  | 9.1  | 8.6  | 8.2  | 7.8  | 7.4  | 7.1  | 6.8  | 6.5        | 6.2  | 6.0  | 5.8  | 5.5  | 5.3  | 5.2  |      |  |
|                                                                      |                      | 45 < t ≤ 50      | 10.2       | 9.6  | 9.0  | 8.5  | 8.1  | 7.6  | 7.2  | 6.9  | 6.6  | 6.3  | 6.0  | 5.7        | 5.5  | 5.3  | 5.1  | 4.9  | 4.7  | 4.5  |      |  |
|                                                                      |                      | 50 < t           | On request |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |      |  |

Table 4

| Core 321/4541. Core 347/4550 *) – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |      |            |            |      |            |            |      |      |
|----------------------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------------|------------|------|------------|------------|------|------|
| Standard                                                             | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |      |            |            |      |            |            |      |      |
|                                                                      |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700       | 2800       | 2900 | 3000       | 3100       | 3200 |      |
| EN 10088-2<br>ASTM A 240                                             | 5                    | 10.0             | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 7.0        | On request |      |            |            |      |      |
|                                                                      | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0       | 10.0       | 10.0 | 10.0       | On request |      |      |
|                                                                      | 7                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0       | 10.0       | 10.0 | 10.0       | On request |      |      |
|                                                                      | 8                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 13.0       | 12.0       | 12.0 | 12.0       | 11.0       | 10.0 |      |
|                                                                      | 9                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 12.0 | 12.0       | 11.0       | 11.0 |      |
|                                                                      | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5       | 13.5       | 12.0 | 11.0 |
|                                                                      | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5       | 13.5       | 13.0 | 12.0 |
|                                                                      | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5       | 13.5       | 13.0 | 12.0 |
|                                                                      | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 |
|                                                                      | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 |
|                                                                      | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 |
|                                                                      | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5       | 13.5       | 13.5 | 13.1 |
|                                                                      | 30 < t ≤ 35          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.2       | 12.7 | 12.3       | 11.8       | 11.4 | 11.1 |
|                                                                      | 35 < t ≤ 40          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.4 | 12.9 | 12.4 | 11.9       | 11.4       | 11.0 | 10.6       | 10.2       | 9.9  | 9.6  |
|                                                                      | 40 < t ≤ 45          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.4 | 11.8 | 11.3 | 10.9 | 10.4       | 10.0       | 9.7  | 9.3        | 9.0        | 8.7  | 8.4  |
|                                                                      | 45 < t ≤ 50          | 13.5             | 13.5 | 13.5 | 13.5 | 12.8 | 12.2 | 11.6 | 11.1 | 10.6 | 10.1 | 9.7  | 9.3  | 8.9        | 8.6        | 8.3  | 8.0        | 7.7        | 7.5  | 7.5  |
|                                                                      | 50 < t ≤ 55          | 13.5             | 13.5 | 12.9 | 12.2 | 11.6 | 11.0 | 10.4 | 10.0 | 9.5  | 9.1  | 8.7  | 8.4  | 8.0        | 7.7        | 7.4  | 7.2        | 6.9        | 6.7  | 6.7  |
|                                                                      | 55 < t ≤ 60          | 13.3             | 12.5 | 11.8 | 11.1 | 10.5 | 10.0 | 9.5  | 9.0  | 8.6  | 8.3  | 7.9  | 7.6  | 7.3        | 7.0        | 6.7  | 6.5        | 6.3        | 6.0  | 6.0  |
|                                                                      | 60 < t ≤ 65          | 12.2             | 11.4 | 10.8 | 10.2 | 9.6  | 9.1  | 8.7  | 8.3  | 7.9  | 7.5  | 7.2  | 6.9  | 6.6        | 6.4        | 6.1  | 5.9        | 5.7        | 5.5  | 5.5  |
|                                                                      | 65 < t ≤ 70          | 11.3             | 10.6 | 9.9  | 9.4  | 8.9  | 8.4  | 8.0  | 7.6  | 7.3  | 6.9  | 6.6  | 6.4  | 6.1        | 5.9        | 5.6  | 5.4        | 5.2        | 5.0  | 5.0  |
|                                                                      | 70 < t ≤ 75          | 10.4             | 9.8  | 9.2  | 8.7  | 8.2  | 7.8  | 7.4  | 7.0  | 6.7  | 6.4  | 6.1  | 5.9  | 5.6        | 5.4        | 5.2  | 5.0        | 4.8        | 4.6  | 4.6  |
|                                                                      | 75 < t ≤ 80          | 9.7              | 9.1  | 8.6  | 8.1  | 7.6  | 7.2  | 6.9  | 6.5  | 6.2  | 5.9  | 5.7  | 5.4  | 5.2        | 5.0        | 4.8  | 4.6        | 4.4        | 4.3  | 4.3  |
|                                                                      | 80 < t ≤ 85          | 9.1              | 8.5  | 8.0  | 7.5  | 7.1  | 6.7  | 6.4  | 6.1  | 5.8  | 5.5  | 5.3  | 5.1  | 4.8        | 4.6        | 4.5  | 4.3        | 4.1        | 4.0  | 4.0  |
| 85 < t ≤ 90                                                          | 8.5                  | 8.0              | 7.5  | 7.1  | 6.7  | 6.3  | 6.0  | 5.7  | 5.4  | 5.2  | 4.9  | 4.7  | 4.5  | 4.3        | 4.2        | 4.0  | 3.8        | 3.7        | 3.7  |      |
| 90 < t ≤ 95                                                          | 8.0                  | 7.5              | 7.1  | 6.6  | 6.3  | 5.9  | 5.6  | 5.3  | 5.1  | 4.8  | 4.6  | 4.4  | 4.2  | 4.1        | 3.9        | 3.7  | 3.6        | 3.4        | 3.4  |      |
| 95 < t ≤ 100                                                         | 7.6                  | 7.1              | 6.7  | 6.3  | 5.9  | 5.6  | 5.3  | 5.0  | 4.8  | 4.6  | 4.3  | 4.1  | 4.0  | 3.8        | 3.6        | 3.5  | 3.4        | 3.2        | 3.2  |      |
| 100 < t ≤ 110                                                        | 6.8                  | 6.4              | 6.0  | 5.6  | 5.3  | 5.0  | 4.7  | 4.5  | 4.3  | 4.0  | 3.9  | 3.7  | 3.5  | 3.4        | 3.2        | 3.1  | 3.0        | 3.0        | 3.0  |      |
| 110 < t ≤ 120                                                        | 6.2                  | 5.7              | 5.4  | 5.1  | 4.8  | 4.5  | 4.2  | 4.0  | 3.8  | 3.6  | 3.5  | 3.3  | 3.1  | 3.0        | 2.9        | 2.7  | On request |            |      |      |
| 120 < t ≤ 130                                                        | 5.6                  | 5.2              | 4.9  | 4.6  | 4.3  | 4.1  | 3.8  | 3.6  | 3.4  | 3.3  | 3.1  | 3.0  | 2.8  | On request |            |      |            |            |      |      |
| 130 < t                                                              | On request           |                  |      |      |      |      |      |      |      |      |      |      |      |            |            |      |            |            |      |      |

\*) Thicknesses > 110 mm, 5 % reduced mechanical values.

# Stainless steel grades

Table 5

| Supra range        |                    |           |        |                                         |      |      |     |      |        |       |
|--------------------|--------------------|-----------|--------|-----------------------------------------|------|------|-----|------|--------|-------|
| Outokumpu name     | Steel designations |           |        | Typical chemical composition, % by mass |      |      |     |      |        |       |
|                    | EN                 | ASTM Type | UNS    | C                                       | Cr   | Ni   | Mo  | N    | Others | Table |
| <b>Austenitic</b>  |                    |           |        |                                         |      |      |     |      |        |       |
| Supra 316/4401     | 1.4401             | 316       | S31600 | 0.04                                    | 17.2 | 10.1 | 2.1 | –    | –      | 7     |
| Supra 316L/4404    | 1.4404             | 316L      | S31603 | 0.02                                    | 17.2 | 10.1 | 2.1 | –    | –      | 7     |
| Supra 316LN/4429   | 1.4429             | 316LN     | S31653 | 0.02                                    | 17.3 | 12.5 | 2.6 | 0.14 | –      | 8     |
| Supra 316L/4432    | 1.4432             | 316L      | S31603 | 0.02                                    | 16.9 | 10.7 | 2.6 | –    | –      | 6     |
| Supra 316L/4435    | 1.4435             | 316L      | S31603 | 0.02                                    | 17.3 | 12.6 | 2.6 | –    | –      | 6     |
| Supra 316/4436     | 1.4436             | 316       | S31600 | 0.04                                    | 16.9 | 10.7 | 2.6 | –    | –      | 6     |
| Supra 316Ti/4571   | 1.4571             | 316Ti     | S31635 | 0.04                                    | 16.8 | 10.9 | 2.1 | –    | Ti     | 6     |
| Supra 724L/4435 *) | 1.4435             | 316L      | S31603 | 0.02                                    | 17.3 | 13.2 | 2.6 | –    | –      | 9     |

\*) Optimized composition for use in urea applications.

Table 6

| Supra 316L/4432 *) , Supra 316L/4435 *) , Supra 316/4436 *) , Supra 316Ti/4571 – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |      |            |      |      |            |            |      |      |
|---------------------------------------------------------------------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------------|------|------|------------|------------|------|------|
| Standard                                                                                                            | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |      |            |      |      |            |            |      |      |
|                                                                                                                     |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700       | 2800 | 2900 | 3000       | 3100       | 3200 |      |
| EN 10088-2<br>ASTM A 240                                                                                            | 5                    | 10.0             | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 7.0  | On request |      |      |            |            |      |      |
|                                                                                                                     | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 10.0 | 10.0       | 10.0 | 8.0  | 6.0        | On request |      |      |
|                                                                                                                     | 7                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 10.0       | 9.0  | 8.5  | 8.0        | On request |      |      |
|                                                                                                                     | 8                    | 13.0             | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0       | 13.0 | 12.0 | 12.0       | 12.0       | 11.0 | 10.0 |
|                                                                                                                     | 9                    | 13.0             | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0       | 13.0 | 13.0 | 12.0       | 12.0       | 11.0 | 10.0 |
|                                                                                                                     | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.0       | 12.0 | 11.0 |
|                                                                                                                     | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.0 | 12.0 |
|                                                                                                                     | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.0 | 12.0 |
|                                                                                                                     | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 |
|                                                                                                                     | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 |
|                                                                                                                     | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 |
|                                                                                                                     | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.1 |
|                                                                                                                     | 30 < t ≤ 35          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.2 | 12.7 | 12.3       | 11.8       | 11.4 | 11.1 |
|                                                                                                                     | 35 < t ≤ 40          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.4 | 12.9 | 12.4 | 11.9       | 11.4 | 11.0 | 10.6       | 10.2       | 9.9  | 9.6  |
|                                                                                                                     | 40 < t ≤ 45          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.4 | 11.8 | 11.3 | 10.9 | 10.4 | 10.0       | 9.7  | 9.3  | 9.0        | 8.7        | 8.4  | 8.4  |
|                                                                                                                     | 45 < t ≤ 50          | 13.5             | 13.5 | 13.5 | 13.5 | 12.8 | 12.2 | 11.6 | 11.1 | 10.6 | 10.1 | 9.7  | 9.3  | 8.9        | 8.6  | 8.3  | 8.0        | 7.7        | 7.5  | 7.5  |
|                                                                                                                     | 50 < t ≤ 55          | 13.5             | 13.5 | 12.9 | 12.2 | 11.6 | 11.0 | 10.4 | 10.0 | 9.5  | 9.1  | 8.7  | 8.4  | 8.0        | 7.7  | 7.4  | 7.2        | 6.9        | 6.7  | 6.7  |
|                                                                                                                     | 55 < t ≤ 60          | 13.3             | 12.5 | 11.8 | 11.1 | 10.5 | 10.0 | 9.5  | 9.0  | 8.6  | 8.3  | 7.9  | 7.6  | 7.3        | 7.0  | 6.7  | 6.5        | 6.3        | 6.0  | 6.0  |
|                                                                                                                     | 60 < t ≤ 65          | 12.2             | 11.4 | 10.8 | 10.2 | 9.6  | 9.1  | 8.7  | 8.3  | 7.9  | 7.5  | 7.2  | 6.9  | 6.6        | 6.4  | 6.1  | 5.9        | 5.7        | 5.5  | 5.5  |
|                                                                                                                     | 65 < t ≤ 70          | 11.3             | 10.6 | 9.9  | 9.4  | 8.9  | 8.4  | 8.0  | 7.6  | 7.3  | 6.9  | 6.6  | 6.4  | 6.1        | 5.9  | 5.6  | 5.4        | 5.2        | 5.0  | 5.0  |
| 70 < t ≤ 75                                                                                                         | 10.4                 | 9.8              | 9.2  | 8.7  | 8.2  | 7.8  | 7.4  | 7.0  | 6.7  | 6.4  | 6.1  | 5.9  | 5.6  | 5.4        | 5.2  | 5.0  | 4.8        | 4.6        | 4.6  |      |
| 75 < t ≤ 80                                                                                                         | 9.7                  | 9.1              | 8.6  | 8.1  | 7.6  | 7.2  | 6.9  | 6.5  | 6.2  | 5.9  | 5.7  | 5.4  | 5.2  | 5.0        | 4.8  | 4.6  | 4.4        | 4.3        | 4.3  |      |
| 80 < t ≤ 85                                                                                                         | 9.1                  | 8.5              | 8.0  | 7.5  | 7.1  | 6.7  | 6.4  | 6.1  | 5.8  | 5.5  | 5.3  | 5.1  | 4.8  | 4.6        | 4.5  | 4.3  | 4.1        | 4.0        | 4.0  |      |
| 85 < t ≤ 90                                                                                                         | 8.5                  | 8.0              | 7.5  | 7.1  | 6.7  | 6.3  | 6.0  | 5.7  | 5.4  | 5.2  | 4.9  | 4.7  | 4.5  | 4.3        | 4.2  | 4.0  | 3.8        | 3.7        | 3.7  |      |
| 90 < t ≤ 95                                                                                                         | 8.0                  | 7.5              | 7.1  | 6.6  | 6.3  | 5.9  | 5.6  | 5.3  | 5.1  | 4.8  | 4.6  | 4.4  | 4.2  | 4.1        | 3.9  | 3.7  | 3.6        | 3.4        | 3.4  |      |
| 95 < t ≤ 100                                                                                                        | 7.6                  | 7.1              | 6.7  | 6.3  | 5.9  | 5.6  | 5.3  | 5.0  | 4.8  | 4.6  | 4.3  | 4.1  | 4.0  | 3.8        | 3.6  | 3.5  | 3.4        | 3.2        | 3.2  |      |
| 100 < t ≤ 110                                                                                                       | 6.8                  | 6.4              | 6.0  | 5.6  | 5.3  | 5.0  | 4.7  | 4.5  | 4.3  | 4.0  | 3.9  | 3.7  | 3.5  | 3.4        | 3.2  | 3.1  | 3.0        | 3.0        | 3.0  |      |
| 110 < t ≤ 120                                                                                                       | 6.2                  | 5.7              | 5.4  | 5.1  | 4.8  | 4.5  | 4.2  | 4.0  | 3.8  | 3.6  | 3.5  | 3.3  | 3.1  | 3.0        | 2.9  | 2.7  | On request |            | 2.7  |      |
| 120 < t ≤ 130                                                                                                       | 5.6                  | 5.2              | 4.9  | 4.6  | 4.3  | 4.1  | 3.8  | 3.6  | 3.4  | 3.3  | 3.1  | 3.0  | 2.8  | On request |      |      |            |            |      |      |
| 130 < t                                                                                                             | On request           |                  |      |      |      |      |      |      |      |      |      |      |      |            |      |      |            |            |      |      |

\*) Thicknesses > 110 mm, 5 % reduced mechanical values.



# Stainless steel grades

Table 10

## Forta range

| Outokumpu name | Steel designations |           |                      | Typical chemical composition, % by mass |      |     |     |      |        |    | Others | Table |
|----------------|--------------------|-----------|----------------------|-----------------------------------------|------|-----|-----|------|--------|----|--------|-------|
|                | EN                 | ASTM Type | UNS                  | C                                       | Cr   | Ni  | Mo  | N    |        |    |        |       |
| <b>Duplex</b>  |                    |           |                      |                                         |      |     |     |      |        |    |        |       |
| Forta LDX 2101 | 1.4162             | –         | S32101               | 0.03                                    | 21.5 | 1.5 | 0.3 | 0.22 | 5Mn Cu | 11 |        |       |
| Forta DX 2304  | 1.4362             | –         | S32304               | 0.02                                    | 23.0 | 4.8 | 0.3 | 0.10 | Cu     | 11 |        |       |
| Forta EDX 2304 | 1.4362             | –         | S32304               | 0.02                                    | 23.8 | 4.3 | 0.5 | 0.18 | Cu     | 11 |        |       |
| Forta LDX 2404 | 1.4662             | –         | S82441               | 0.02                                    | 24.0 | 3.6 | 1.6 | 0.27 | 3Mn Cu | 12 |        |       |
| Forta DX 2205  | 1.4462             | –         | S32205 <sup>*)</sup> | 0.02                                    | 22.4 | 5.7 | 3.1 | 0.17 | –      | 11 |        |       |
| Forta SDX 2507 | 1.4410             | –         | S32750               | 0.02                                    | 25.0 | 7.0 | 4.0 | 0.27 | –      | 13 |        |       |
| Forta SDX 100  | 1.4501             | –         | S32760               | 0.02                                    | 25.4 | 6.9 | 3.8 | 0.27 | W Cu   | 13 |        |       |

<sup>\*)</sup> Also available as UNS S31803.

Table 11

## Forta DX 2304 <sup>1)</sup>, Forta EDX 2304 <sup>1)</sup>, Forta DX 2205 <sup>2)</sup>, Forta LDX 2101 <sup>3)</sup> – Maximum plate length in meters (m)

| Standard                 | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |            |      |      |      |            |      |      |      |            |      |      |      |
|--------------------------|----------------------|------------------|------|------|------|------|------|------|------|------------|------|------|------|------------|------|------|------|------------|------|------|------|
|                          |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300       | 2400 | 2500 | 2600 | 2700       | 2800 | 2900 | 3000 | 3100       | 3200 |      |      |
| EN 10088-2<br>ASTM A 240 | 5                    | 10.0             | 10.0 | 10.0 | 10.0 | 10.0 | 9.0  | 8.0  | 6.0  | On request |      |      |      |            |      |      |      |            |      |      |      |
|                          | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 9.0        | 8.0  | 8.0  | 6.0  | On request |      |      |      |            |      |      |      |
|                          | 7                    | 12.5             | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5       | 12.5 | 12.5 | 12.0 | 11.5       | 11.0 | 10.5 | 10.0 | On request |      |      |      |
|                          | 8                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.0       | 12.5 | 12.0 | 11.5 | 11.0       | 10.0 |      |      |
|                          | 9                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.0       | 12.5 | 12.0 |      |
|                          | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.0 | 12.5 |
|                          | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 |
|                          | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 |
|                          | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 |
|                          | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 |
|                          | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 |
|                          | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.4 |
|                          | 30 < t ≤ 35          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.0 | 12.6 | 12.1       | 11.7 | 11.4 |      |
|                          | 35 < t ≤ 40          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.2 | 12.7 | 12.2       | 11.7 | 11.3 | 10.9 | 10.5       | 10.2 | 9.9  |      |
|                          | 40 < t ≤ 45          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.3 | 12.7 | 12.1       | 11.6 | 11.2 | 10.7 | 10.3       | 10.0 | 9.6  | 9.3  | 9.0        | 8.7  |      |      |
|                          | 45 < t ≤ 50          | 13.5             | 13.5 | 13.5 | 13.5 | 13.1 | 12.5 | 11.9 | 11.4 | 10.9       | 10.4 | 10.0 | 9.6  | 9.2        | 8.9  | 8.6  | 8.3  | 8.0        | 7.8  |      |      |
|                          | 50 < t ≤ 55          | 13.5             | 13.5 | 13.2 | 12.5 | 11.9 | 11.3 | 10.7 | 10.3 | 9.8        | 9.4  | 9.0  | 8.7  | 8.3        | 8.0  | 7.7  | 7.5  | 7.2        | 7.0  |      |      |
|                          | 55 < t ≤ 60          | 13.5             | 12.8 | 12.1 | 11.4 | 10.8 | 10.3 | 9.8  | 9.3  | 8.9        | 8.6  | 8.2  | 7.9  | 7.6        | 7.3  | 7.0  | 6.8  | 6.6        | 6.3  |      |      |
|                          | 60 < t ≤ 65          | 12.5             | 11.7 | 11.1 | 10.5 | 9.9  | 9.4  | 9.0  | 8.6  | 8.2        | 7.8  | 7.5  | 7.2  | 6.9        | 6.7  | 6.4  | 6.2  | 6.0        | 5.8  |      |      |
|                          | 65 < t ≤ 70          | 11.6             | 10.9 | 10.2 | 9.7  | 9.2  | 8.7  | 8.3  | 7.9  | 7.6        | 7.2  | 6.9  | 6.7  | 6.4        | 6.2  | 5.9  | 5.7  | 5.5        | 5.3  |      |      |
| 70 < t ≤ 75              | 10.7                 | 10.1             | 9.5  | 9.0  | 8.5  | 8.1  | 7.7  | 7.3  | 7.0  | 6.7        | 6.4  | 6.2  | 5.9  | 5.7        | 5.5  | 5.3  | 5.1  | 4.9        |      |      |      |
| 75 < t ≤ 80              | 10.0                 | 9.4              | 8.9  | 8.4  | 7.9  | 7.5  | 7.2  | 6.8  | 6.5  | 6.2        | 6.0  | 5.7  | 5.5  | 5.3        | 5.1  | 4.9  | 4.7  | 4.6        |      |      |      |
| 80 < t ≤ 85              | 9.4                  | 8.8              | 8.3  | 7.8  | 7.4  | 7.0  | 6.7  | 6.4  | 6.1  | 5.8        | 5.6  | 5.4  | 5.1  | 4.9        | 4.8  | 4.6  | 4.4  | 4.3        |      |      |      |
| 85 < t ≤ 90              | 8.8                  | 8.3              | 7.8  | 7.4  | 7.0  | 6.6  | 6.3  | 6.0  | 5.7  | 5.5        | 5.2  | 5.0  | 4.8  | 4.6        | 4.5  | 4.3  | 4.1  | 4.0        |      |      |      |
| 90 < t ≤ 95              | 8.3                  | 7.8              | 7.4  | 6.9  | 6.6  | 6.2  | 5.9  | 5.6  | 5.4  | 5.1        | 4.9  | 4.7  | 4.5  | 4.4        | 4.2  | 4.0  | 3.9  | 3.7        |      |      |      |
| 95 < t ≤ 100             | 7.9                  | 7.4              | 7.0  | 6.6  | 6.2  | 5.9  | 5.6  | 5.3  | 5.1  | 4.9        | 4.6  | 4.4  | 4.3  | 4.1        | 3.9  | 3.8  | 3.7  | 3.5        |      |      |      |
| 100 < t                  | On request           |                  |      |      |      |      |      |      |      |            |      |      |      |            |      |      |      |            |      |      |      |

<sup>1)</sup> 1.4362 max 50 mm, according to EN 10028-7.

<sup>2)</sup> 1.4462 max 75 mm, according to EN 10028-7.

<sup>3)</sup> 1.4162 max 30 mm, according to EN 10028-7 and max 100mm acc. EN 10088-2.

Table 12

| Forta LDX 2404 *) – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |            |      |      |      |            |      |      |      |            |      |            |            |      |
|--------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------------|------|------|------|------------|------|------|------|------------|------|------------|------------|------|
| Standard                                               | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |            |      |      |      |            |      |      |      |            |      |            |            |      |
|                                                        |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300       | 2400 | 2500 | 2600 | 2700       | 2800 | 2900 | 3000 | 3100       | 3200 |            |            |      |
| EN 10088-2<br>ASTM A 240                               | 5                    | 10.0             | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 8.0  | 6.0  | On request |      |      |      |            |      |      |      |            |      |            |            |      |
|                                                        | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 9.0        | 8.0  | 8.0  | 6.0  | On request |      |      |      |            |      |            |            |      |
|                                                        | 7                    | 12.5             | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5       | 12.5 | 12.5 | 12.0 | 11.5       | 11.0 | 10.5 | 10.0 | On request |      |            |            |      |
|                                                        | 8                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.0 | 12.5 | 12.0 | 11.5       | 11.0 | 10.0       |            |      |
|                                                        | 9                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.0 | 12.5       | 12.0       |      |
|                                                        | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.0       | 12.5 |
|                                                        | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5       | 13.5 |
|                                                        | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5       | 13.5 |
|                                                        | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5       | 13.5 |
|                                                        | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.4 | 12.9       | 12.5       | 12.1 |
|                                                        | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.3 | 12.8 | 12.2 | 11.8       | 11.3 | 10.9 | 10.6 | 10.2       | 9.9  | 9.5        | On request |      |
|                                                        | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.3 | 12.6 | 12.0 | 11.5       | 11.0 | 10.5 | 10.1 | 9.7        | 9.3  | 9.0  | 8.7  | 8.4        | 8.1  | 7.8        | On request |      |
|                                                        | 30 < t ≤ 35          | 13.5             | 13.3 | 12.5 | 11.9 | 11.3 | 10.7 | 10.2 | 9.7  | 9.3        | 8.9  | 8.5  | 8.2  | 7.9        | 7.6  | 7.3  | 7.1  | 6.8        | 6.6  | On request |            |      |
|                                                        | 35 < t ≤ 40          | 12.3             | 11.6 | 10.9 | 10.3 | 9.8  | 9.3  | 8.8  | 8.4  | 8.1        | 7.7  | 7.4  | 7.1  | 6.8        | 6.6  | 6.3  | 6.1  | 5.9        | 5.7  | On request |            |      |
|                                                        | 40 < t ≤ 45          | 10.9             | 10.2 | 9.6  | 9.1  | 8.6  | 8.2  | 7.8  | 7.4  | 7.1        | 6.8  | 6.5  | 6.2  | 6.0        | 5.8  | 5.6  | 5.4  | 5.2        | 5.0  | On request |            |      |
|                                                        | 45 < t ≤ 50          | 9.7              | 9.1  | 8.6  | 8.1  | 7.7  | 7.3  | 6.9  | 6.6  | 6.3        | 6.0  | 5.8  | 5.5  | 5.3        | 5.1  | 4.9  | 4.7  | 4.6        | 4.4  | On request |            |      |
| 50 < t                                                 |                      | On request       |      |      |      |      |      |      |      |            |      |      |      |            |      |      |      |            |      |            |            |      |

\*) Thickness max 50 mm, according to EN 10028-7.

Table 13

| Forta SDX 2507 *) , Forta SDX 100 *) – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |            |      |      |      |            |      |            |      |      |            |            |      |            |            |      |
|---------------------------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------------|------|------|------|------------|------|------------|------|------|------------|------------|------|------------|------------|------|
| Standard                                                                  | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |            |      |      |      |            |      |            |      |      |            |            |      |            |            |      |
|                                                                           |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100       | 2200 | 2300 | 2400 | 2500       | 2600 | 2700       | 2800 | 2900 | 3000       | 3100       | 3200 |            |            |      |
| EN 10088-2<br>ASTM A 240                                                  | 5                    | 10.0             | 10.0 | 10.0 | 10.0 | 9.0  | 8.0  | On request |      |      |      |            |      |            |      |      |            |            |      |            |            |      |
|                                                                           | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0       | 10.0 | 8.0  | 6.0  | On request |      |            |      |      |            |            |      |            |            |      |
|                                                                           | 7                    | 12.5             | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5       | 12.5 | 12.5 | 11.0 | 8.0        | 6.0  | On request |      |      |            |            |      |            |            |      |
|                                                                           | 8                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.0       | 9.0  | 6.0  | On request |            |      |            |            |      |
|                                                                           | 9                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5 | 12.0 | 10.0       | On request |      |            |            |      |
|                                                                           | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 12.0       | 9.0  | On request |            |      |
|                                                                           | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 11.0 | 10.0       | On request |      |
|                                                                           | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.0       | 12.0       |      |
|                                                                           | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5       | 13.5       | 13.5 |
|                                                                           | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.4       | 12.9       | 12.5 |
|                                                                           | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5       | 13.1 | 12.6       | 12.1 | 11.7 | 11.2       | 10.9       | 10.5 | 10.1       | On request |      |
|                                                                           | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 12.8 | 12.2 | 11.7 | 11.2       | 10.7 | 10.3       | 9.9  | 9.5  | 9.2        | 8.9        | 8.6  | 8.3        | On request |      |
|                                                                           | 30 < t ≤ 35          | 13.5             | 13.5 | 13.4 | 12.7 | 12.0 | 11.4 | 10.9       | 10.4 | 9.9  | 9.5  | 9.1        | 8.7  | 8.4        | 8.0  | 7.7  | 7.5        | 7.2        | 7.0  | On request |            |      |
|                                                                           | 35 < t ≤ 40          | 13.1             | 12.3 | 11.6 | 11.0 | 10.4 | 9.9  | 9.4        | 8.9  | 8.5  | 8.2  | 7.8        | 7.5  | 7.2        | 6.9  | 6.7  | 6.4        | 6.2        | 6.0  | On request |            |      |
|                                                                           | 40 < t ≤ 45          | 11.6             | 10.9 | 10.2 | 9.6  | 9.1  | 8.6  | 8.2        | 7.8  | 7.5  | 7.1  | 6.8        | 6.5  | 6.3        | 6.0  | 5.8  | 5.6        | 5.4        | 5.2  | On request |            |      |
|                                                                           | 45 < t ≤ 50          | 10.3             | 9.7  | 9.1  | 8.6  | 8.1  | 7.7  | 7.3        | 6.9  | 6.6  | 6.3  | 6.0        | 5.8  | 5.6        | 5.3  | 5.1  | 4.9        | 4.7        | 4.6  | On request |            |      |
| 50 < t                                                                    |                      | On request       |      |      |      |      |      |            |      |      |      |            |      |            |      |      |            |            |      |            |            |      |

\*) Thickness max 50 mm, according to EN 10028-7.

# Stainless steel grades

Table 14

| Outokumpu name           | Steel designations |      |                   | Typical chemical composition, % by mass |      |      |     |      |        |     | Table |
|--------------------------|--------------------|------|-------------------|-----------------------------------------|------|------|-----|------|--------|-----|-------|
|                          | EN                 | ASTM |                   | C                                       | Cr   | Ni   | Mo  | N    | Others |     |       |
|                          |                    | Type | UNS               |                                         |      |      |     |      |        |     |       |
| <b>Austenitic</b>        |                    |      |                   |                                         |      |      |     |      |        |     |       |
| Ultra 317L               | 1.4438             | 317L | S31703            | 0.02                                    | 18.2 | 13.7 | 3.1 | –    | –      | 17  |       |
| Ultra 725LN              | 1.4466             | –    | S31050            | 0.01                                    | 25.0 | 22.3 | 2.1 | 0.12 | –      | 18  |       |
| Ultra 6XN                | 1.4529             | –    | N08926/<br>N08367 | 0.01                                    | 20.5 | 24.8 | 6.5 | 0.20 | Cu     | 15  |       |
| Ultra 904L               | 1.4539             | 904L | N08904            | 0.01                                    | 19.8 | 24.2 | 4.3 | –    | 1.4Cu  | 16  |       |
| Ultra 254 SMO            | 1.4547             | –    | S31254            | 0.01                                    | 20.0 | 18.0 | 6.1 | 0.20 | Cu     | 15  |       |
| Ultra 3964 <sup>*)</sup> | –                  | –    | –                 | 0.02                                    | 20.5 | 15.0 | 3.2 | 0.27 | 4Mn    | **) |       |

\*) Also sold under the trademark Amanox®.

\*\*\*) On request.

Table 15

| Ultra 254 SMO, Ultra 6XN – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |            |            |            |            |      |      |      |  |  |
|---------------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------------|------------|------------|------------|------|------|------|--|--|
| Standard                                                      | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |            |            |            |            |      |      |      |  |  |
|                                                               |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600       | 2700       | 2800       | 2900       | 3000 | 3100 | 3200 |  |  |
| EN 10088-2<br>ASTM A 240                                      | 7                    | 6.0              | 6.0  | 6.0  | 6.0  | 6.0  | 6.0  | 10.0 | 9.0  | 8.0  | 7.0  | 6.0  | On request |            |            |            |      |      |      |  |  |
|                                                               | 8                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 10.0 | 9.0  | 8.0  | 7.0  | 6.0        | On request |            |            |      |      |      |  |  |
|                                                               | 9                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 10.0 | 9.0  | 8.0  | 7.0  | 6.0        | On request |            |            |      |      |      |  |  |
|                                                               | 10                   | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 10.0 | 9.0  | 9.0  | 8.0        | 8.0        | On request |            |      |      |      |  |  |
|                                                               | 11                   | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 9.0  | 9.0  | 9.0        | 8.0        | 8.0        | On request |      |      |      |  |  |
|                                                               | 12                   | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 10.0 | 10.0 | 10.0       | 9.0        | 8.0        | On request |      |      |      |  |  |
|                                                               | 12 < t ≤ 15          | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 10.0 | 10.0       | 10.0       | 9.0        | On request |      |      |      |  |  |
|                                                               | 15 < t ≤ 20          | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.9 | 11.4       | 11.0       | 10.0       | On request |      |      |      |  |  |
|                                                               | 20 < t ≤ 25          | 12.0             | 12.0 | 12.0 | 12.0 | 11.9 | 11.3 | 10.7 | 10.2 | 9.8  | 9.3  | 8.9  | 8.6        | 8.3        | On request |            |      |      |      |  |  |
|                                                               | 25 < t ≤ 30          | 12.0             | 11.6 | 10.9 | 10.3 | 9.7  | 9.2  | 8.8  | 8.3  | 8.0  | 7.6  | 7.3  | 7.0        | 6.7        | On request |            |      |      |      |  |  |
|                                                               | 30 < t ≤ 35          | 10.4             | 9.8  | 9.2  | 8.7  | 8.2  | 7.8  | 7.4  | 7.0  | 6.7  | 6.4  | 6.1  | 5.8        | 5.6        | On request |            |      |      |      |  |  |
|                                                               | 35 < t ≤ 40          | 9.0              | 8.4  | 7.9  | 7.5  | 7.0  | 6.7  | 6.3  | 6.0  | 5.7  | 5.5  | 5.2  | 5.0        | 4.8        | On request |            |      |      |      |  |  |
| 40 < t                                                        |                      |                  |      |      |      |      |      |      |      |      |      |      |            |            |            |            |      |      |      |  |  |

Table 16

| Ultra 904L – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |            |      |      |      |            |            |            |  |  |  |
|-------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------------|------|------|------|------------|------------|------------|--|--|--|
| Standard                                        | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |            |      |      |      |            |            |            |  |  |  |
|                                                 |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600       | 2700 | 2800 | 2900 | 3000       | 3100       | 3200       |  |  |  |
| EN 10088-2<br>ASTM A 240                        | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 10.0 | 9.0  | 8.0  | On request |      |      |      |            |            |            |  |  |  |
|                                                 | 7                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 10.0 | 9.0  | 9.0  | On request |      |      |      |            |            |            |  |  |  |
|                                                 | 8                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 10.0       | 9.0  | 8.0  | 7.0  | 6.0        | On request |            |  |  |  |
|                                                 | 9                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0       | 10.0 | 9.0  | 8.0  | 7.0        | On request |            |  |  |  |
|                                                 | 10                   | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0       | 12.0 | 11.0 | 10.0 | 9.0        | 8.0        | On request |  |  |  |
|                                                 | 11                   | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0       | 12.0 | 11.0 | 10.0 | 9.0        | 9.0        | On request |  |  |  |
|                                                 | 12                   | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0       | 12.0 | 11.0 | 10.0 | 10.0       | 10.0       | On request |  |  |  |
|                                                 | 12 < t ≤ 15          | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0       | 12.0       | On request |  |  |  |
|                                                 | 15 < t ≤ 20          | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0       | 12.0       | On request |  |  |  |
|                                                 | 20 < t ≤ 25          | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0       | 12.0 | 11.6 | 11.2 | 10.8       | 10.4       | On request |  |  |  |
|                                                 | 25 < t ≤ 30          | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.8 | 11.3 | 10.8 | 10.3 | 9.9        | 9.5  | 9.2  | 8.8  | 8.5        | On request |            |  |  |  |
|                                                 | 30 < t ≤ 35          | 12.0             | 12.0 | 12.0 | 12.0 | 11.6 | 11.0 | 10.4 | 10.0 | 9.5  | 9.1  | 8.7  | 8.4        | 8.0  | 7.7  | 7.4  | 7.2        | On request |            |  |  |  |
| 35 < t ≤ 40                                     | 12.0                 | 11.9             | 11.2 | 10.6 | 10.0 | 9.5  | 9.0  | 8.6  | 8.2  | 7.8  | 7.5  | 7.2  | 6.9        | 6.6  | 6.4  | 6.2  | On request |            |            |  |  |  |
| 40 < t ≤ 45                                     | 11.1                 | 10.4             | 9.8  | 9.3  | 8.8  | 8.3  | 7.9  | 7.5  | 7.2  | 6.9  | 6.6  | 6.3  | 6.0        | 5.8  | 5.6  | 5.4  | On request |            |            |  |  |  |
| 45 < t ≤ 50                                     | 9.9                  | 9.3              | 8.7  | 8.2  | 7.8  | 7.4  | 7.0  | 6.7  | 6.4  | 6.1  | 5.8  | 5.6  | 5.3        | 5.1  | 4.9  | 4.7  | On request |            |            |  |  |  |
| 50 < t                                          |                      |                  |      |      |      |      |      |      |      |      |      |      |            |      |      |      |            |            |            |  |  |  |



Table 17

| Ultra 317L – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Standard                                        | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                 |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800 | 2900 | 3000 | 3100 | 3200 |      |
| EN 10088-2                                      | ASTM A 240           | 5                | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                 |                      | 6                | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                 |                      | 7                | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 8.0  | 7.0  |      |      |      |      |      |      |
|                                                 |                      | 8                | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 9.0  | 9.0  | 8.0  |      |      |      |
|                                                 |                      | 9                | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 | 9.0  | 8.0  |
|                                                 |                      | 10               | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 |
|                                                 |                      | 11               | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 |
|                                                 |                      | 12               | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 10.0 |
|                                                 |                      | 12 < t ≤ 15      | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 |
|                                                 |                      | 15 < t ≤ 20      | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 |
|                                                 |                      | 20 < t ≤ 25      | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 10.9 | 10.5 | 10.0 | 9.7  | 9.3  | 9.0  | 8.7  | 8.4  | 8.1  |
|                                                 |                      | 25 < t ≤ 30      | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.1 | 10.5 | 10.0 | 9.6  | 9.2  | 8.8  | 8.4  | 8.1  | 7.8  | 7.5  | 7.3  | 7.0  | 6.8  |
|                                                 |                      | 30 < t ≤ 35      | 12.0 | 12.0 | 11.3 | 10.7 | 10.1 | 9.6  | 9.1  | 8.7  | 8.3  | 8.0  | 7.7  | 7.4  | 7.1  | 6.8  | 6.6  | 6.4  | 6.2  | 6.0  |
|                                                 |                      | 35 < t ≤ 40      | 11.2 | 10.5 | 9.9  | 9.4  | 8.9  | 8.4  | 8.0  | 7.7  | 7.3  | 7.0  | 6.7  | 6.5  | 6.2  | 6.0  | 5.8  | 5.6  | 5.4  | 5.3  |
|                                                 |                      | 40 < t ≤ 45      | 10.0 | 9.4  | 8.8  | 8.3  | 7.9  | 7.5  | 7.1  | 6.8  | 6.5  | 6.3  | 6.0  | 5.8  | 5.6  | 5.4  | 5.2  | 5.0  | 4.8  | 4.7  |
| 45 < t ≤ 50                                     | 9.0                  | 8.5              | 8.0  | 7.5  | 7.1  | 6.8  | 6.4  | 6.2  | 5.9  | 5.6  | 5.4  | 5.2  | 5.0  | 4.8  | 4.7  | 4.5  | 4.4  | 4.2  |      |      |
| 50 < t                                          |                      | On request       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

Table 18

| Ultra 725LN – Maximum plate length in meters (m) |                      |                  |      |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------------------------------|----------------------|------------------|------|------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Standard                                         | Plate thickness (mm) | Plate width (mm) |      |            |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                                  |                      | 1500             | 1600 | 1700       | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800 | 2900 | 3000 | 3100 | 3200 |      |
| EN 10088-2                                       | ASTM A 240           | 5                | 9.0  | 9.0        | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 8.0  | 8.0  |      |      |      |      |      |      |      |
|                                                  |                      | 6                | 9.0  | 9.0        | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 8.0  | 8.0  |      |      |      |      |      |      |      |
|                                                  |                      | 7                | 10.0 | 10.0       | 10.0 | 10.0 | 10.0 | 9.0  | 9.0  | 9.0  | 9.0  | 9.0  | 8.0  | 7.0  |      |      |      |      |      |      |
|                                                  |                      | 8                | 11.0 | 11.0       | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 9.0  | 9.0  | 8.0  |      |      |      |
|                                                  |                      | 9                | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 | 9.0  | 8.0  |      |
|                                                  |                      | 10               | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 10.0 | 10.0 | 9.0  |
|                                                  |                      | 11               | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 10.0 | 10.0 | 9.0  |
|                                                  |                      | 12               | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 10.0 | 9.0  |
|                                                  |                      | 12 < t ≤ 15      | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 9.0  |
|                                                  |                      | 15 < t ≤ 20      | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 |
|                                                  |                      | 20 < t ≤ 25      | 12.0 | 12.0       | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 10.9 | 10.5 | 10.0 | 9.7  | 9.3  | 9.0  | 8.7  | 8.4  | 8.1  |
|                                                  |                      | 25 < t ≤ 30      | 12.0 | 12.0       | 12.0 | 12.0 | 11.1 | 10.5 | 10.0 | 9.6  | 9.2  | 8.8  | 8.4  | 8.1  | 7.8  | 7.5  | 7.3  | 7.0  | 6.8  | 6.6  |
|                                                  |                      | 30 < t           |      | On request |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

# Stainless steel grades

Table 19

| Therma range     |                    |           |        |                                         |      |      |    |      |        |    |       |
|------------------|--------------------|-----------|--------|-----------------------------------------|------|------|----|------|--------|----|-------|
| Outokumpu name   | Steel designations |           |        | Typical chemical composition, % by mass |      |      |    |      |        |    | Table |
|                  | EN                 | ASTM Type | UNS    | C                                       | Cr   | Ni   | Mo | N    | Others |    |       |
| <b>Austentic</b> |                    |           |        |                                         |      |      |    |      |        |    |       |
| Therma 4828      | 1.4828             | –         | –      | 0.05                                    | 19.3 | 11.2 | –  | –    | Si     | 21 |       |
| Therma 309S/4833 | 1.4833             | 309S      | S30908 | 0.06                                    | 22.3 | 12.3 | –  | –    | –      | 20 |       |
| Therma 253 MA    | 1.4835             | –         | S30815 | 0.09                                    | 21.0 | 11.0 | –  | 0.17 | Si Ce  | 21 |       |
| Therma 314/4841  | 1.4841             | 314       | S31400 | 0.06                                    | 24.3 | 19.2 | –  | –    | Si     | 20 |       |
| Therma 310S/4845 | 1.4945             | 310S      | S31008 | 0.05                                    | 25.5 | 19.1 | –  | –    | –      | 21 |       |
| Therma 304H/4948 | 1.4948             | 304H      | S30409 | 0.05                                    | 18.1 | 8.3  | –  | –    | –      | 22 |       |

Table 20

| Therma 309S/4833, Therma 314/4841 *) – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |            |            |      |      |            |            |            |  |
|---------------------------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------------|------------|------|------|------------|------------|------------|--|
| Standard                                                                  | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |            |            |      |      |            |            |            |  |
|                                                                           |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600       | 2700       | 2800 | 2900 | 3000       | 3100       | 3200       |  |
| EN 10095<br>ASTM A 240                                                    | 5                    | 10.0             | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 8.0  | 7.0  | 7.0  | 6.0  | 6.0  | On request |            |      |      |            |            |            |  |
|                                                                           | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | On request |            |      |      |            |            |            |  |
|                                                                           | 7                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0       | On request |      |      |            |            |            |  |
|                                                                           | 8                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 13.0 | 12.0 | 12.0 | 12.0 | 10.0       | 9.0        | 8.0  | 7.0  | On request |            |            |  |
|                                                                           | 9                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0       | 11.0       | 10.0 | 9.0  | 8.0        | On request |            |  |
|                                                                           | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0       | 12.0       | 11.0 | 10.0 | 10.0       | On request |            |  |
|                                                                           | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 | 12.0       | On request |            |  |
|                                                                           | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 | 13.5       | On request |            |  |
|                                                                           | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 | 13.5       | On request |            |  |
|                                                                           | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5       | 13.5 | 13.5 | 13.5       | On request |            |  |
|                                                                           | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0       | 12.5       | 12.0 | 11.6 | 11.2       | 10.8       | On request |  |
|                                                                           | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.4 | 12.7 | 12.2 | 11.6 | 11.1 | 10.7 | 10.2       | 9.9        | 9.5  | 9.1  | 8.8        | On request |            |  |
|                                                                           | 30 < t               | On request       |      |      |      |      |      |      |      |      |      |      |            |            |      |      |            |            |            |  |

\*) Not included in ASTM A240.

Table 21

| Therma 4828 *) , Therma 253 MA, Therma 310S/4845 – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |      |            |      |      |            |            |      |  |
|---------------------------------------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------------|------|------|------------|------------|------|--|
| Standard                                                                              | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |      |            |      |      |            |            |      |  |
|                                                                                       |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700       | 2800 | 2900 | 3000       | 3100       | 3200 |  |
| EN 10095<br>ASTM A 240                                                                | 5                    | On request       |      |      |      |      |      |      |      |      |      |      |      |            |      |      |            |            |      |  |
|                                                                                       | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | On request |      |      |            |            |      |  |
|                                                                                       | 7                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | On request |      |      |            |            |      |  |
|                                                                                       | 8                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 13.0 | 12.0 | 12.0 | 12.0 | 10.0 | 9.0        | 8.0  | 7.0  | On request |            |      |  |
|                                                                                       | 9                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.0 | 11.0       | 10.0 | 9.0  | 8.0        | On request |      |  |
|                                                                                       | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.0       | 11.0 | 10.0 | 10.0       | On request |      |  |
|                                                                                       | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 12.0       | On request |      |  |
|                                                                                       | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | On request |      |  |
|                                                                                       | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | On request |      |  |
|                                                                                       | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5       | On request |      |  |
|                                                                                       | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.5 | 12.0       | 11.6 | 11.2 | 10.8       | On request |      |  |
|                                                                                       | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.4 | 12.7 | 12.2 | 11.6 | 11.1 | 10.7 | 10.2 | 9.9        | 9.5  | 9.1  | 8.8        | On request |      |  |
|                                                                                       | 30 < t ≤ 35          | 13.5             | 13.5 | 13.3 | 12.6 | 11.9 | 11.3 | 10.8 | 10.3 | 9.8  | 9.4  | 9.0  | 8.6  | 8.3        | 8.0  | 7.7  | 7.4        | On request |      |  |
| 35 < t ≤ 40                                                                           | 13.1                 | 12.3             | 11.5 | 10.9 | 10.3 | 9.8  | 9.3  | 8.9  | 8.5  | 8.1  | 7.8  | 7.4  | 7.1  | 6.9        | 6.6  | 6.4  | On request |            |      |  |
| 40 < t ≤ 45                                                                           | 11.5                 | 10.8             | 10.1 | 9.6  | 9.1  | 8.6  | 8.2  | 7.8  | 7.4  | 7.1  | 6.8  | 6.5  | 6.2  | 6.0        | 5.8  | 5.5  | On request |            |      |  |
| 45 < t                                                                                | On request           |                  |      |      |      |      |      |      |      |      |      |      |      |            |      |      |            |            |      |  |

\*) Not included in ASTM A240.

Table 22

| Therma 304H/4948 – Maximum plate length in meters (m) |                      |                  |      |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |      |
|-------------------------------------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------------|------|------|------|------|------|------|------|
| Standard                                              | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |      |
|                                                       |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700       | 2800 | 2900 | 3000 | 3100 | 3200 |      |      |
| EN 10088-2<br>ASTM A 240                              | 5                    | 10.0             | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 7.0  | On request |      |      |      |      |      |      |      |
|                                                       | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0       | 10.0 | 10.0 |      |      |      |      |      |
|                                                       | 7                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0       | 10.0 | 10.0 | 10.0 |      |      |      |      |
|                                                       | 8                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 13.0       | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 |      |      |
|                                                       | 9                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 12.0 | 12.0 | 11.0 | 11.0 |      |
|                                                       | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |      |
|                                                       | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.0 |
|                                                       | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.0 |
|                                                       | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |
|                                                       | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |
|                                                       | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |
|                                                       | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.4 |
|                                                       | 30 < t ≤ 35          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 | 13.0 | 12.6 | 12.1 | 11.7 | 11.4 |      |
|                                                       | 35 < t ≤ 40          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.2 | 12.7 | 12.2       | 11.7 | 11.3 | 10.9 | 10.5 | 10.2 | 9.9  |      |
|                                                       | 40 < t ≤ 45          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.3 | 12.7 | 12.1 | 11.6 | 11.2 | 10.7       | 10.3 | 10.0 | 9.6  | 9.3  | 9.0  | 8.7  |      |
|                                                       | 45 < t ≤ 50          | 13.5             | 13.5 | 13.5 | 13.5 | 13.1 | 12.5 | 11.9 | 11.4 | 10.9 | 10.4 | 10.0 | 9.6  | 9.2        | 8.9  | 8.6  | 8.3  | 8.0  | 7.8  | 7.8  |      |
|                                                       | 50 < t ≤ 55          | 13.5             | 13.5 | 13.2 | 12.5 | 11.9 | 11.3 | 10.7 | 10.3 | 9.8  | 9.4  | 9.0  | 8.7  | 8.3        | 8.0  | 7.7  | 7.5  | 7.2  | 7.0  |      |      |
|                                                       | 55 < t ≤ 60          | 13.5             | 12.8 | 12.1 | 11.4 | 10.8 | 10.3 | 9.8  | 9.3  | 8.9  | 8.6  | 8.2  | 7.9  | 7.6        | 7.3  | 7.0  | 6.8  | 6.6  | 6.3  |      |      |
|                                                       | 60 < t ≤ 65          | 12.5             | 11.7 | 11.1 | 10.5 | 9.9  | 9.4  | 9.0  | 8.6  | 8.2  | 7.8  | 7.5  | 7.2  | 6.9        | 6.7  | 6.4  | 6.2  | 6.0  | 5.8  |      |      |
|                                                       | 65 < t ≤ 70          | 11.6             | 10.9 | 10.2 | 9.7  | 9.2  | 8.7  | 8.3  | 7.9  | 7.6  | 7.2  | 6.9  | 6.7  | 6.4        | 6.2  | 5.9  | 5.7  | 5.5  | 5.3  |      |      |
|                                                       | 70 < t ≤ 75          | 10.7             | 10.1 | 9.5  | 9.0  | 8.5  | 8.1  | 7.7  | 7.3  | 7.0  | 6.7  | 6.4  | 6.2  | 5.9        | 5.7  | 5.5  | 5.3  | 5.1  | 4.9  |      |      |
|                                                       | 75 < t ≤ 80          | 10.0             | 9.4  | 8.9  | 8.4  | 7.9  | 7.5  | 7.2  | 6.8  | 6.5  | 6.2  | 6.0  | 5.7  | 5.5        | 5.3  | 5.1  | 4.9  | 4.7  | 4.6  |      |      |
|                                                       | 80 < t ≤ 85          | 9.4              | 8.8  | 8.3  | 7.8  | 7.4  | 7.0  | 6.7  | 6.4  | 6.1  | 5.8  | 5.6  | 5.4  | 5.1        | 4.9  | 4.8  | 4.6  | 4.4  | 4.3  |      |      |
| 85 < t ≤ 90                                           | 8.8                  | 8.3              | 7.8  | 7.4  | 7.0  | 6.6  | 6.3  | 6.0  | 5.7  | 5.5  | 5.2  | 5.0  | 4.8  | 4.6        | 4.5  | 4.3  | 4.1  | 4.0  |      |      |      |
| 90 < t ≤ 95                                           | 8.3                  | 7.8              | 7.4  | 6.9  | 6.6  | 6.2  | 5.9  | 5.6  | 5.4  | 5.1  | 4.9  | 4.7  | 4.5  | 4.4        | 4.2  | 4.0  | 3.9  | 3.7  |      |      |      |
| 95 < t ≤ 100                                          | 7.9                  | 7.4              | 7.0  | 6.6  | 6.2  | 5.9  | 5.6  | 5.3  | 5.1  | 4.9  | 4.6  | 4.4  | 4.3  | 4.1        | 3.9  | 3.8  | 3.7  | 3.5  |      |      |      |
| 100 < t ≤ 110                                         | 7.1                  | 6.7              | 6.3  | 5.9  | 5.6  | 5.3  | 5.0  | 4.8  | 4.6  | 4.3  | 4.2  | 4.0  | 3.8  | 3.7        | 3.5  | 3.4  | 3.3  | 3.3  |      |      |      |
| 110 < t ≤ 120                                         | 6.5                  | 6.0              | 5.7  | 5.4  | 5.1  | 4.8  | 4.5  | 4.3  | 4.1  | 3.9  | 3.8  | 3.6  | 3.4  | 3.3        | 3.2  | 3.0  |      |      |      |      |      |
| 120 < t ≤ 130                                         | 5.9                  | 5.5              | 5.2  | 4.9  | 4.6  | 4.4  | 4.1  | 3.9  | 3.7  | 3.6  | 3.4  | 3.3  | 3.1  |            |      |      |      |      |      |      |      |
| 130 < t                                               | On request           |                  |      |      |      |      |      |      |      |      |      |      |      |            |      |      |      |      |      |      |      |

# Stainless steel grades

Table 23

## Prodec range

| Outokumpu name    | Steel designations |           |        | Typical chemical composition, % by mass |      |      |     |   |        |       |
|-------------------|--------------------|-----------|--------|-----------------------------------------|------|------|-----|---|--------|-------|
|                   | EN                 | ASTM Type | UNS    | C                                       | Cr   | Ni   | Mo  | N | Others | Table |
| <b>Austenitic</b> |                    |           |        |                                         |      |      |     |   |        |       |
| Prodec 304/4301   | 1.4301             | 304       | S30400 | 0.04                                    | 18.1 | 8.3  | –   | – | –      | 25    |
| Prodec 304L/4307  | 1.4307             | 304L      | S30403 | 0.02                                    | 18.1 | 8.1  | –   | – | –      | 25    |
| Prodec 316/4401   | 1.4401             | 316       | S31600 | 0.02                                    | 17.2 | 10.2 | 2.1 | – | –      | 25    |
| Prodec 316L/4404  | 1.4404             | 316L      | S31603 | 0.02                                    | 17.2 | 10.1 | 2.1 | – | –      | 25    |
| Prodec 316L/4432  | 1.4432             | 316L      | S31603 | 0.02                                    | 16.9 | 10.7 | 2.6 | – | –      | 25    |
| Prodec 316/4436   | 1.4436             | 316       | S31600 | 0.02                                    | 16.9 | 10.7 | 2.6 | – | –      | 25    |

Table 24

Prodec 304/4301, Prodec 304L/4307, Prodec 316/4401 <sup>\*)</sup>, Prodec 316L/4404 <sup>\*)</sup>, Prodec 316L/4432 <sup>\*)</sup>, Prodec 316/4436 <sup>\*)</sup>  
 – Maximum plate length in meters (m)

| Standard                 | Plate thickness (mm) | Plate width (mm) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |            |      |
|--------------------------|----------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------------|------|
|                          |                      | 1500             | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800 | 2900 | 3000 | 3100 | 3200 |            |      |
| EN 10088-2<br>ASTM A 240 | 5                    | 10.0             | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | On request |      |
|                          | 6                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 11.0 | 10.0 | 10.0 | 10.0 | 10.0 |            |      |
|                          | 7                    | 12.0             | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0 | 10.0 | 10.0 | 10.0 |      |            |      |
|                          | 8                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 13.0 | 12.0 | 12.0 | 12.0 | 11.0 | 10.0       |      |
|                          | 9                    | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 12.0 | 12.0 | 11.0 | 11.0       |      |
|                          | 10                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 12.0       | 11.0 |
|                          | 11                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0       | 12.0 |
|                          | 12                   | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0       | 12.0 |
|                          | 12 < t ≤ 15          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 |
|                          | 15 < t ≤ 20          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 |
|                          | 20 < t ≤ 25          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.5 |
|                          | 25 < t ≤ 30          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5       | 13.1 |
|                          | 30 < t ≤ 35          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.2 | 12.7 | 12.3 | 11.8 | 11.4 | 11.1       |      |
|                          | 35 < t ≤ 40          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.4 | 12.9 | 12.4 | 11.9 | 11.4 | 11.0 | 10.6 | 10.2 | 9.9  | 9.6        |      |
|                          | 40 < t ≤ 45          | 13.5             | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.0 | 12.4 | 11.8 | 11.3 | 10.9 | 10.4 | 10.0 | 9.7  | 9.3  | 9.0  | 8.7  | 8.4  |            |      |
|                          | 45 < t ≤ 50          | 13.5             | 13.5 | 13.5 | 13.5 | 12.8 | 12.2 | 11.6 | 11.1 | 10.6 | 10.1 | 9.7  | 9.3  | 8.9  | 8.6  | 8.3  | 8.0  | 7.7  | 7.5  |            |      |
|                          | 50 < t ≤ 55          | 13.5             | 13.5 | 12.9 | 12.2 | 11.6 | 11.0 | 10.4 | 10.0 | 9.5  | 9.1  | 8.7  | 8.4  | 8.0  | 7.7  | 7.4  | 7.2  | 6.9  | 6.7  |            |      |
|                          | 55 < t ≤ 60          | 13.3             | 12.5 | 11.8 | 11.1 | 10.5 | 10.0 | 9.5  | 9.0  | 8.6  | 8.3  | 7.9  | 7.6  | 7.3  | 7.0  | 6.7  | 6.5  | 6.3  | 6.0  |            |      |
|                          | 60 < t ≤ 65          | 12.2             | 11.4 | 10.8 | 10.2 | 9.6  | 9.1  | 8.7  | 8.3  | 7.9  | 7.5  | 7.2  | 6.9  | 6.6  | 6.4  | 6.1  | 5.9  | 5.7  | 5.5  |            |      |
|                          | 65 < t ≤ 70          | 11.3             | 10.6 | 9.9  | 9.4  | 8.9  | 8.4  | 8.0  | 7.6  | 7.3  | 6.9  | 6.6  | 6.4  | 6.1  | 5.9  | 5.6  | 5.4  | 5.2  | 5.0  |            |      |
| 70 < t ≤ 75              | 10.4                 | 9.8              | 9.2  | 8.7  | 8.2  | 7.8  | 7.4  | 7.0  | 6.7  | 6.4  | 6.1  | 5.9  | 5.6  | 5.4  | 5.2  | 5.0  | 4.8  | 4.6  |      |            |      |
| 75 < t ≤ 80              | 9.7                  | 9.1              | 8.6  | 8.1  | 7.6  | 7.2  | 6.9  | 6.5  | 6.2  | 5.9  | 5.7  | 5.4  | 5.2  | 5.0  | 4.8  | 4.6  | 4.4  | 4.3  |      |            |      |
| 80 < t ≤ 85              | 9.1                  | 8.5              | 8.0  | 7.5  | 7.1  | 6.7  | 6.4  | 6.1  | 5.8  | 5.5  | 5.3  | 5.1  | 4.8  | 4.6  | 4.5  | 4.3  | 4.1  | 4.0  |      |            |      |
| 85 < t ≤ 90              | 8.5                  | 8.0              | 7.5  | 7.1  | 6.7  | 6.3  | 6.0  | 5.7  | 5.4  | 5.2  | 4.9  | 4.7  | 4.5  | 4.3  | 4.2  | 4.0  | 3.8  | 3.7  |      |            |      |
| 90 < t ≤ 95              | 8.0                  | 7.5              | 7.1  | 6.6  | 6.3  | 5.9  | 5.6  | 5.3  | 5.1  | 4.8  | 4.6  | 4.4  | 4.2  | 4.1  | 3.9  | 3.7  | 3.6  | 3.4  |      |            |      |
| 95 < t ≤ 100             | 7.6                  | 7.1              | 6.7  | 6.3  | 5.9  | 5.6  | 5.3  | 5.0  | 4.8  | 4.6  | 4.3  | 4.1  | 4.0  | 3.8  | 3.6  | 3.5  | 3.4  | 3.2  |      |            |      |
| 100 < t ≤ 110            | 6.8                  | 6.4              | 6.0  | 5.6  | 5.3  | 5.0  | 4.7  | 4.5  | 4.3  | 4.0  | 3.9  | 3.7  | 3.5  | 3.4  | 3.2  | 3.1  | 3.0  |      |      |            |      |
| 110 < t ≤ 120            | 6.2                  | 5.7              | 5.4  | 5.1  | 4.8  | 4.5  | 4.2  | 4.0  | 3.8  | 3.6  | 3.5  | 3.3  | 3.1  | 3.0  | 2.9  | 2.7  |      |      |      |            |      |
| 120 < t ≤ 130            | 5.6                  | 5.2              | 4.9  | 4.6  | 4.3  | 4.1  | 3.8  | 3.6  | 3.4  | 3.3  | 3.1  | 3.0  | 2.8  |      |      |      |      |      |      |            |      |
| 130 < t                  |                      |                  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | On request |      |

<sup>\*)</sup> Thicknesses > 110 mm, 5 % reduced mechanical values.

## Size range

The size ranges shown in the tables above illustrate the standard manufacturing program of hot rolled plate. Other sizes can be delivered by special agreement in each case. For grades not mentioned in the Dimension Program tables or for grades not mentioned in the Steel Grade table, please contact us by [outokumpu.com/contacts](http://outokumpu.com/contacts) for more information about available products and dimensions. The relationship between plate thickness, width, length and maximum plate weight depends on the steel grade and special criteria may apply for different applications. Consequently, the sizes available may in certain cases differ somewhat from those given in the tables.

### Stock standard

Quarto Plates are kept in stock at Outokumpu service centers throughout Europe as well as in other parts of the world. The stock program for each service center is adapted to local market demands and will consequently be different at different locations. Information on the products available in your area can be obtained from the local Outokumpu sales office. For your local contact please visit our website: [outokumpu.com/contacts](http://outokumpu.com/contacts)

### Product standards

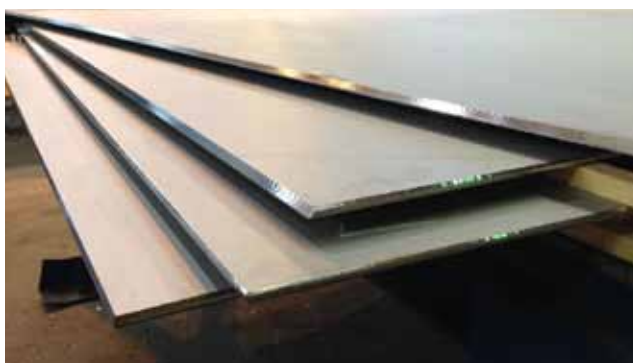
Quarto Plates are manufactured to order in conformity with the applicable international or national standards, such as EN, ASTM, ASME, and JIS. Production according to other standards and specifications may be possible by special agreement. NORSOK approval is available for Outokumpu grades Forta DX 2205, Forta SDX 2507, Forta SDX 100, Ultra 6XN and Ultra 254 SMO.

### Surface finish

Quarto Plates are normally delivered in the hot rolled, annealed and pickled condition, i.e. 1D (EN) or Finish No. 1 (ASTM). Other surface finishes are available such as 1G, ground on one or two sides down to 0.8 µm, according to EN 10028-7. For special architecture and building applications, a 1K surface can be supplied by prior agreement.

### Edge preparation

Quarto Plates are normally delivered with plasma cut or sheared edges. We also have the capabilities to prepare the plates for welding with tailored edges. Several different types of joint are available, e.g. V, X, U and J. Further information is available on request.



### Corrugated plate

We can offer corrugated plates. These are produced by press brake bending and various shapes and profiles with tailored edges can be produced. Further information on available shapes and dimension is available on request.

### Cut shapes

We can offer flat shapes cut from plate. These shapes are plasma cut from plates of all grades within the Product and Dimension Program. Shapes can be produced directly from the customers CAD drawings. In cooperation with our Plate Service Centers we can also offer cut shapes by water-jet cutting. This cutting method offers better tolerances and finer edges than plasma cutting. Shapes may also be delivered edge prepared. Further information on the dimension program for cut shapes is available on request.



### Packing

We offer standard packages for all types of transportation. Depending on customer requirements, the type of product and the mode of transportation, additional packing methods are available. For more information, please contact your nearest Outokumpu Stainless representative.

### Providing overall solutions

Outokumpu has the expertise and equipment to supply ready-to-assemble stainless steel solutions. Design and materials selection are determined in close cooperation with the customer to provide the most cost-effective solution. Outokumpu has extensive research resources and knowledge and can offer customers an overall solution including tailor-made products and services.

### High strength profiles

Our Plate Service Centre Nordic has the unique possibility to offer high strength welded beams and profiles made from duplex stainless steel. The profiles are an Outokumpu product with the trade name DUPROF™. The high strength construction components that we can provide are in many cases a very cost effective solution for the customer and due to an enhanced corrosion resistance the life time expectancy is very high. We also have the possibility to produce tailor-made profiles and beams according to the customer needs.



# Notes

A series of horizontal dotted lines for writing notes.



# Working towards forever.

We work with our customers and partners to create long lasting solutions for the tools of modern life and the world's most critical problems: clean energy, clean water, and efficient infrastructure. Because we believe in a world that lasts forever.

| outokumpu classic             |                        |                               | outokumpu pro                |                                  |               |                           |                        |                  |
|-------------------------------|------------------------|-------------------------------|------------------------------|----------------------------------|---------------|---------------------------|------------------------|------------------|
| <b>Moda</b>                   | <b>Core</b>            | <b>Supra</b>                  | <b>Forta</b>                 | <b>Ultra</b>                     | <b>Dura</b>   | <b>Therma</b>             | <b>Prodec</b>          | <b>Deco</b>      |
| Mildly corrosive environments | Corrosive environments | Highly corrosive environments | Duplex & other high strength | Extremely corrosive environments | High hardness | High service temperatures | Improved machinability | Special surfaces |

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